

IN THE CLAIMS:

Claims 1-3 (Canceled)

1 4. (Previously presented) A method executed in a computer system having at
2 least one processor for determining axial rotation of a pelvis from a single
3 fluoroscopic image, comprising

4 A. receiving a fluoroscopic image of said pelvis in the near AP direction;

5 B. defining first and second landmarks of said pelvis on said image, said
6 landmarks separated from each other in at least an anterior-posterior direction;

7 C. determining the transaxial displacement of said landmarks on said image;
8 and

9 D. using said displacement to determine the axial rotation of said pelvis with
10 respect to the plane of said fluoroscopic image.

1 5. (Original) A method according to claim 4 in which said first landmark
2 comprises the image point of the pubic symphysis.

1 6. (Original) A method according to claim 5 in which said second landmark
2 comprises the midpoint of a line between the image points of the left and right
3 sacroiliac joints.

1 7. (Original) A method according to claim 4 in which said displacement is
2 normalized with respect to the separation between a further pair of landmarks.

1 8. (Original) A method according to claim 7 in which said further pair of
2 landmarks comprises the left and right teardrops.

1 9. (Previously presented) A method executed in a computer system having at
2 least one processor for determining the transaxial rotation of a pelvis from a single
3 fluoroscopic image, comprising

- 4 A. receiving a fluoroscopic image of said pelvis in the near AP direction;
5 B. defining first and second landmarks of said pelvis on said image, said
6 landmarks separated from each other in at least an anterior-posterior direction;
7 C. determining the axial displacement of said landmarks on said image; and
8 D. using said displacement as a measure of the transaxial rotation of said
9 pelvis with respect to the plane of said fluoroscopic image.

1 10. (Original) A method according to claim 9 in which said first landmark
2 comprises the image point of the pubic symphysis.

1 11. (Original) A method according to claim 10 in which said second
2 landmark comprises the midpoint of a line between the image points of the left and
3 right sacroiliac joints.

1 12. (Original) A method according to claim 11 in which said displacement is
2 normalized with respect to the separation between a further pair of landmarks.

1 13. (Original) A method according to claim 12 in which said further pair of
2 landmarks comprises the left and right teardrops.

1 14. (Original) A method according to claim 12 in which the transaxial
2 rotation is taken as a function of the relation of said displacement to the
3 corresponding displacements on the fluoroscopic images of a sample of pelvises
4 taken at known orientation to the fluoroscopic image plane.

1 15. (Previously presented) A computer-readable medium comprising
2 instructions executable by at least one processing entity for determining a patient-

3 specific pelvic coordinate system from a single near AP intra-operative image of the
4 patient, the medium comprising:

5 instructions to receive a single intra-operative fluoroscopic image of the
6 patient's pelvis in the near AP direction;

7 instructions to define first and second landmarks of said pelvis on said image,
8 said landmarks being separated from each other in at least an anterior-posterior
9 direction;

10 instructions to determine the transaxial displacement of said landmarks on
11 said image;

12 instructions to determine the axial displacement of said landmarks on said
13 image;

14 instructions to calculate an axial rotation of said pelvis with respect to the
15 plane of said image based on the transaxial displacement, and

16 instructions to calculate a transaxial rotation of said pelvis with the respect to
17 the plane of said image based on the axial displacement.

1 16. (Previously presented) The computer-readable medium of claim 15
2 wherein said first landmark comprises the image point of the pubic symphysis.

1 17. (Previously presented) The computer-readable medium of claim 15
2 wherein the second landmark comprises the midpoint of a line between corresponding
3 points on said image of the left and right sacroiliac joints.

1 18. (Previously presented) The computer-readable medium of claim 15
2 wherein said displacements are normalized with respect to the separation between a
3 further pair of landmarks on the pelvis.

1 19. (Previously presented) The computer-readable medium of claim 18
2 wherein said further pair of landmarks comprises the left and right teardrops.

20. (Previously presented) The computer-readable medium of claim 4 wherein the transaxial rotation is taken as a function of the relation of said axial displacement to the corresponding displacements of electronic images of a sample of pelvises taken at a known orientation to said fluoroscopic image.

21. (Previously presented) The computer-readable medium of claim 15 wherein the axial displacement is k , and the transaxial rotation is a function of:

$$v-v_0$$

where v_0 is the axial displacement distance corresponding to a non-rotated pelvis.